

**Table D6: Illnesses and Injuries Reported in California¹ Associated With² Pesticide Exposure, Summarized by Pesticide(s) and Type of Illness
2016**

Pesticide ³	Systemic/ Respiratory ⁴		Topical ⁴		Total	
	Definite/ Probable	Possible	Definite/ Probable	Possible	Definite/ Probable	Possible
Organophosphates						
Acephate	3	0	0	0	3	0
Chlorpyrifos	3	0	3	0	6	0
DDVP	7	1	0	0	7	1
Diazinon	1	0	0	0	1	0
Malathion	5	2	0	0	5	2
Naled	1	0	0	0	1	0
N-Methyl Carbamates						
Carbaryl	0	1	0	0	0	1
Carbofuran	1	0	0	0	1	0
Methomyl	1	0	0	0	1	0
Pyrethrins and Pyrethroids						
Beta-Cyfluthrin	1	0	3	0	4	0
Bifenthrin	5	4	0	0	5	4
Cyfluthrin	1	1	1	0	2	1
Cyhalothrin	0	1	0	0	0	1
Cypermethrin	10	7	2	0	12	7
Deltamethrin	2	3	6	0	8	3
Esfenvalerate	1	0	0	0	1	0
Fenpropathrin	0	0	1	0	1	0
Gamma-Cyhalothrin	2	4	2	2	4	6
Lambda-Cyhalothrin	3	0	0	3	3	3
Permethrin	3	3	1	0	4	3
Pyrethrins	7	0	0	0	7	0
Organochlorines						
Chlordane	0	1	0	0	0	1
Other Pesticides						
1,3-Dichloropropene	1	0	1	0	2	0

Pesticide ³	Systemic/ Respiratory ⁴		Topical ⁴		Total	
	Definite/ Probable	Possible	Definite/ Probable	Possible	Definite/ Probable	Possible
2,4-D	0	0	0	1	0	1
Abamectin	1	1	1	0	2	1
Adjuvant	1	0	0	0	1	0
Alkyl Amino Propane	1	0	1	0	2	0
Aluminum Phosphide	2	2	0	0	2	2
Amitraz	1	0	0	0	1	0
Azadirachtin	2	0	0	0	2	0
Borax	0	1	0	0	0	1
Boric Acid	8	4	1	1	9	5
Bromethalin	0	2	0	0	0	2
Calcium Hypochlorite	4	0	1	0	5	0
Chlorinated-Cyanuric Acid	6	0	3	0	9	0
Chlorine	2	0	0	1	2	1
Chlorine Dioxide	1	0	0	0	1	0
Chloropicrin	7	0	4	0	11	0
Codling Moth Granulosis Virus	0	1	0	0	0	1
Copper Ammonium Complex	0	0	1	0	1	0
Copper Naphthenate	2	1	0	0	2	1
Copper Sulfate	0	0	1	0	1	0
Deet	1	1	2	1	3	2
Dinotefuran	4	0	0	0	4	0
Diphacinone	1	2	0	0	1	2
Diquat	1	0	0	0	1	0
Ferric Sodium EDTA	0	0	1	0	1	0
Fipronil	0	1	2	0	2	1
Glutaraldehyde	1	0	0	0	1	0
Glyphosate	5	2	3	0	8	2
Hydrogen Chloride	2	1	4	0	6	1
Hydrogen Peroxide	0	1	2	0	2	1
Hydroprene	0	1	0	0	0	1
Hypochlorous Acid	2	0	0	0	2	0
Imidacloprid	0	1	0	0	0	1

Pesticide ³	Systemic/ Respiratory ⁴		Topical ⁴		Total	
	Definite/ Probable	Possible	Definite/ Probable	Possible	Definite/ Probable	Possible
Iron Phosphate	0	1	0	0	0	1
Isopropyl Alcohol	0	0	1	0	1	0
Metam-potassium	17	0	9	1	26	1
Metam-sodium	0	0	0	1	0	1
Mineral Oxychloride	0	1	0	0	0	1
Nonanoic Acid	1	0	0	0	1	0
Oil of Lemon Eucalyptus	1	0	0	0	1	0
Para-Dichlorobenzene	1	1	0	0	1	1
Paraquat	0	0	2	0	2	0
Pendimethalin	1	0	0	0	1	0
Phenolic Disinfectants	0	0	1	0	1	0
Phosphine	6	0	0	0	6	0
Propiconazole	1	0	0	0	1	0
Quaternary Ammonia	8	3	31	3	39	6
Reynoutria Sachalinesis	6	3	7	1	13	4
Sodium Chlorite	1	0	0	0	1	0
Sodium Hypochlorite	70	14	43	2	113	16
Spirodiclofen	0	1	0	0	0	1
Spiromesifen	0	1	0	0	0	1
Sulfur	19	2	15	1	34	3
Sulfuryl Fluoride	7	15	0	0	7	15
Thiamethoxam	0	0	0	1	0	1
Thiram	1	0	0	0	1	0
Triclopyr	1	0	0	0	1	0
Trisodium Phosphate	0	0	1	0	1	0
Zinc Phosphide	1	0	0	0	1	0
Combinations of Antimicrobials	34	2	22	0	56	2
Combinations of Fumigants	1	0	0	0	1	0
Combinations of Fungicides	11	2	2	1	13	3
Combinations of Herbicides	13	7	10	5	23	12
Combinations of Insecticides Including ChE Inhibitor(s)	10	0	0	0	10	0

Pesticide ³	Systemic/ Respiratory ⁴		Topical ⁴		Total	
	Definite/ Probable	Possible	Definite/ Probable	Possible	Definite/ Probable	Possible
Combinations of Insecticides Without ChE Inhibitor(s)	101	39	16	3	117	42
Miscellaneous Combinations	34	20	11	2	45	22
Unknown Antimicrobials	23	2	11	5	34	7
Unknown Herbicides	1	1	0	0	1	1
Unknown Insecticides	24	21	10	4	34	25
Unknown Pesticides	1	6	0	0	1	6
TOTAL	508	192	239	39	747	231

1. Source: California Department of Pesticide Regulation, Pesticide Illness Surveillance Program.

2. Associated With: Includes cases classified as definitely, probably, or possibly related to pesticide exposure.

Definite: High degree of correlation between pattern of exposure and resulting symptomatology. Requires both medical evidence (e.g., measured cholinesterase inhibition, positive allergy tests, characteristic signs observed by medical professional) and physical evidence of exposure (e.g., environmental and/or biological samples, exposure history) to support the conclusions.

Probable: Relatively high degree of correlation exists between the pattern of exposure and the resulting symptomatology. Either medical or physical evidence is inconclusive or unavailable.

Possible: Health effects correspond generally to the reported exposure, but evidence is not available to support a relationship.

3. Type of Pesticide: Type of pesticide based on functional class.

Antimicrobials: Pesticides used to kill or inactivate microbiological organisms (e.g., bacteria, viruses).

Cholinesterase Inhibitors: Pesticides known to inhibit the function of the cholinesterase enzyme.

Other Pesticides: Any pesticide that is not an antimicrobial or cholinesterase-inhibiting pesticide.

4. Type of Illness: Categorization of the type of symptoms experienced.

- Systemic:** Any health effects not limited to the respiratory tree, skin, and/or eyes. Cases involving multiple illness symptom types including systemic symptoms are included in the systemic category.
- Respiratory:** Health effects involving any part of the respiratory tree.
- Topical:** Health effects involving only the eyes and/or skin. This excludes outward physical signs (e.g., miosis, lacrimation) related to effects on internal bodily systems. These signs are classified under ‘Systemic.’
- Asymptomatic:** Exposure occurred, but did not result in illness/injury. Cholinesterase depression without symptoms falls in this category.

Whom to Contact:

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About the Pesticide Illness Surveillance Program Data

Pesticide-related illnesses have been tracked within the state of California for more than 50 years. The California Environmental Protection Agency, Department of Pesticide Regulation (DPR) maintains a surveillance program which records human health effects of pesticide exposure. The Pesticide Illness Surveillance Program (PISP) documents information on adverse effects from pesticide products, whether elicited by the active ingredients, inert ingredients, impurities, or breakdown products. This program maintains a database, which is utilized for evaluating the circumstances of pesticide exposures resulting in illness. This database is consulted regularly by staff who evaluate the effectiveness of the DPR pesticide safety programs and recommend changes when appropriate.